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EXAMINER	
RAMIREZ, ARMANDO P	

ART UNIT	PAPER NUMBER
1794	

NOTIFICATION DATE	DELIVERY MODE
05/15/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/593,590	SHUNSUKE ET AL.	
	Examiner	Art Unit	
	ARMANDO P. RAMIREZ	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03/03/2009, 03/18/2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *09/21/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. **The restriction requirement dated 01/09/2009 is withdrawn.**

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. **The abstract of the disclosure is objected** to because legal phraseology often used in patent claims, such as "means" and "said," should be avoided, See line 1, i.e. comprises (and additional examples therein).

4. Correction is required. See MPEP § 608.01(b).

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3, 6-10, 13, and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Arakawa (US 5,189,538).

Arakawa teaches with respect to Claim 1, the claimed optical laminate (optical laminate C) (*Abstract, lines 1-10, and Figure 1 and Figure 2, layer "A" and layer "B," vide infra*) which comprises a layer (layer A) comprising a resin having a negative intrinsic birefringence (*Figure 1, layer "A," see Col. 2, lines 20-23, Col. 5, lines 7-55*) and the claimed at least one layer (layer B) comprising a transparent resin (*polycarbonate, considered to be a transparent resin, Figure 1, layer "B," see Col. 4 line 63 through Col. 5, line 6*) and the claimed laminated at least on one face of layer A (*Figure 1, Col. 6, line 60*) and satisfies a relation | Re(A) | > | Re(B) |, wherein Re(A) and Re(B) represent an in-plane retardation of layer A (*569 nm, Example 3, Table 1, Col. 9, line 28*) and an in-plane retardation of layer B (*560 nm, Example 1, Col. 6, line 59*), respectively, measured with light having a wavelength of 400 to 700 nm (*632.8 nm, Col. 6, line 66*). The light wavelength range as claimed by the applicant in the instant claim overlaps the light wavelength value as taught by Arakawa.

With respect to the Claimed "layer B having substantially no orientation," the applicant describes in the specification of the instant application (Page 13, line 18), that "In the present invention, 'having substantially no orientation' means that the difference in the refractive index in the x-direction n_Bx and the refractive index in the y-direction n_By which are perpendicular to each other in layer B is small **and** the value of $|(n_Ax - n_Ay) \times d_A| + |(n_Bx - n_By) \times d_B|$ is 1.1 times the value of $|(n_Ax - n_Ay) \times d_A|$ or smaller when the refractive index in the x-direction and the refractive index in the y-direction which are perpendicular to each other in layer A are represented by n_Ax and n_Ay, respectively, the thickness of layer A is represented by d_A, and the thickness of layer B is represented by d_B."

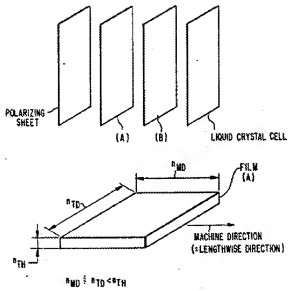
Arakawa teaches the difference in the refractive index in the x-direction n_Bx (*n_{TD}, considered to be the x-direction*) and the refractive index in the y-direction n_By (*n_{MD}, considered to be the y-direction*) which are perpendicular to each other in layer B is small (*n_{MD} = 1.591, n_{TD} = 1.582, difference = 1.591 – 1.582 = 0.009, Col. 7, lines 15-25*). Therefore, the difference between the refractive index in the x-direction and the refractive index in the y-direction is considered to be small.

Arakawa teaches with respect to the value of $|(n_Ax - n_Ay) \times d_A| + |(n_Bx - n_By) \times d_B|$ is 1.1 times the value of $|(n_Ax - n_Ay) \times d_A|$ or smaller when the refractive index in the x-direction (*n_{TD}, considered to be the refractive index in the x-direction, Figure 2*) and the refractive index in the y-direction (*n_{MD}, considered to be the refractive index in the y-direction, Figure 2*) which are perpendicular to each other in layer A (*n_{TD} is perpendicular to n_{MD}, Figure 2*) are represented by n_Ax (n_{TD}) and n_Ay (n_{MD}), respectively, the thickness of layer A is represented by d_A (*Col. 8, line 19*), and the thickness of layer B is represented by d_B (*Col. 6, line*

59). The values for $|(n_{Ax} - n_{Ay}) \times d_A|$ are taught in Col. 7, line 22, and the values for $|(n_{Bx} - n_{By}) \times d_B|$ are taught Col. 8, lines 34-35. Substitution of the variables with refractive index values as taught by Arakawa yield two numerical values, 0.612 and "0," respectively.

Therefore, the value of the first mathematical equation (0.612) is considered to be 1.1 times the value of the second equation ("0") or smaller as described by the applicant in the specification of the instant application. Hence, layer B as taught by Arakawa meets the applicant's description with respect to "layer B having substantially no orientation."

Arakawa (Prior Art, Figures 1 and 2):



With respect to Claim 2, Arakawa teaches the invention set forth above, but does not specifically teach the claimed optical laminate, wherein |Re(B)| is 20 nm or smaller.

Arakawa, however, teaches using essentially the same disclosed film, having essentially the same identical materials, which display essentially the same identical properties, including the **layer B having substantially no orientation** (*vide supra*).

Therefore, since the polymer film of Arakawa must have essentially the same physical characteristics as the polymer film of the instant application, it would be expected that the film as taught by Arakawa will have essentially the same retardation (|Re(B)|) of 20 nm or smaller as claimed by the applicant in the instant claim.

With respect to the Claimed 3, Arakawa teaches the invention set forth above, but does not specifically teach the claimed optical laminate, which satisfies a relation Tg(A) > Tg(B) + 20, wherein Tg(A) and Tg(B) represent glass transition temperatures in °C of the resin of layer A and the resin of layer B, respectively.

Arakawa, however, teaches using essentially the same disclosed materials for the resin polymers as the instant application (*see at least see Col. 2, lines 20-23, Col. 5, lines 7-55, and Col. 4 line 63 through Col. 5, line 6, as well as* Page 10, line 24, and Page 11, lines 8-16 *of the specification of the instant application*).

Therefore, since the resin polymers of Arakawa must have essentially the same physical characteristics as the resin polymers of the instant application, it would be expected that the resin polymers as taught by Arakawa will satisfy essentially the same relation Tg(A) > Tg(B) + 20, wherein Tg(A) and Tg(B) represent glass transition temperatures in °C of the resin of layer A and the resin of layer B, respectively.

With respect to Claim 6, Arakawa teaches the invention set forth above, but does not specifically teach the claimed optical laminate, wherein an unevenness in a thickness of layer A is 3.0% or smaller of an average thickness of layer A.

Arakawa, however, teaches using essentially the same disclosed film A, having essentially the same identical materials, which displays essentially the same identical properties (*vide supra*).

Therefore, since the polymer film of Arakawa must have essentially the same physical characteristics as the polymer film of the instant application, it would be expected that the film as taught by Arakawa will have essentially the same unevenness in a thickness of layer A of 3.0% or smaller as claimed by the applicant in the instant claim.

With respect to Claim 7, Arakawa teaches the claimed optical laminate, wherein the resin having a negative intrinsic birefringence is a resin selected from a group consisting of vinyl aromatic polymers (*styrene, considered to be a vinyl aromatic polymer, Col. 5, line 18*), polyacrylonitrile polymers and polymethyl methacrylate polymers (*see at least Col. 5, lines 14-25*).

With respect to Claim 8, Arakawa teaches the claimed optical laminate, wherein the resin having a negative intrinsic birefringence is a vinyl aromatic polymer (*styrene, considered to be a vinyl aromatic polymer, Col. 5, line 18*).

With respect to Claim 9, Arakawa teaches the claimed optical laminate, wherein the resin having a negative intrinsic birefringence is a resin selected from a group consisting of polystyrene and copolymers of styrene and maleic anhydride (*see at least, Col. 5, line 43*).

With respect to Claim 10, Arakawa teaches the claimed optical laminate, wherein the transparent resin is a resin having an alicyclic structure (*cellulose, considered to have an alicyclic structure, Col. 5, line 4*).

With respect to Claim 13, Arakawa teaches the invention set forth above, but does not specifically teach the claimed optical laminate, wherein the transparent resin has a tensile elongation at break of 30% or greater.

Arakawa, however, teaches using essentially the same disclosed materials for the resin polymers as the instant application (*see at least see Col. 2, lines 20-23, Col. 5, lines 7-55, and Col. 4 line 63 through Col. 5, line 6, as well as* Page 10, line 24, and Page 11, lines 8-16 *of the specification of the instant application*).

Therefore, since the resin polymers of Arakawa must have essentially the same physical characteristics as the resin polymers of the instant application, it would be expected that the resin polymers as taught by Arakawa will have essentially the same tensile elongation at break of 30% or greater as instantly claimed.

With respect to Claim 17, Arakawa teaches the claimed optical element comprising a laminate of the optical laminate described in claim 1 (*Figure 1, A and B*) and a polarizer plate (*polarizing sheet plus A and B, Figure 1*).

With respect to Claim 18, Arakawa teaches the claimed liquid crystal device which uses at least one sheet of the optical laminate described in claim 1 (*see Figure 1*).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 5 and 14, are rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa (US 5,189,538).

With respect to Claim 5, Arakawa teaches the claimed optical laminate, which satisfies a relation $\Sigma nz > \Sigma ny - 0.002$ (*n_{TH} = 1.555, n_{MD} = 1.543, Col. 7, lines 9-10*), wherein Σnz represents a refractive index in a direction of a thickness (*n_{TH}, considered to be Σnz, see Figure 2*) and Σny (*n_{MD}, considered to be Σny*) and Σnx (*n_{TD}, considered to be Σnx*) represent refractive indices in two directions which are perpendicular to the direction of a thickness and perpendicular to each other of optical laminate C (*Example 1, Col. 6, line 50*) and Σnx, Σny and Σnz satisfy relations $\Sigma nx < \Sigma ny$ (*n_{TD} = 1.542, n_{MD} = 1.543*) and $\Sigma nx < \Sigma nz$ (*n_{TD} = 1.542, n_{TH} = 1.555*). The mathematical inequalities of the instant claim are met by the refractive index values as taught by Arakawa pertaining to the optical laminate C, see specifically Example 1, the laminate is composed of polycarbonate (layer B) and polystyrene (layer A).

With respect to the claimed measured with light having a wavelength of 550 nm, Arakawa teaches measuring the refractive indices with a monochromatic light beam of 632.8 nm. Hence, since there is recognition of this feature in the art, the claimed measured with light having a wavelength of 550 nm is a result-effective variable that is subject to routine experimentation for the purpose of acquiring the desired refractive index values of the optical laminate C.

Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to have measured the refractive indices with a monochromatic light beam of 550 nm, in

order to acquire the data necessary to tune the retardation properties of the optical laminate C, thereby ultimately modifying the viewing angle of the liquid crystal display.

With respect to Claim 14, Arakawa teaches the claimed optical laminate, wherein the layer comprising a transparent resin and having substantially no orientation (layer B) is laminated on both faces of the layer comprising a resin having a negative intrinsic birefringence (layer A) (*see Figure 1, and Abstract, line 10*).

Arakawa teaches at least one layer B is laminated on the surface of layer A, therefore, at the time of the invention it would have been obvious to laminate layer A between two sheets of layer B for the purpose of providing the optical laminate C with additional protection against physical and mechanical stress.

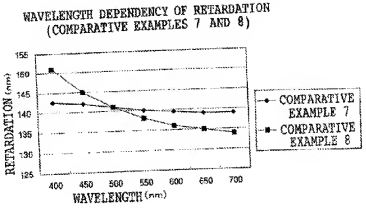
Claim Rejections - 35 USC § 103

10. Claims 4, 11-12, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa (US 5,189,538) in view of Arakawa (US 2002/0005925 A1).

With respect to Claim 4, Arakawa teaches the invention set forth above, but does not specifically teach the claimed optical laminate, which satisfies a relation Re(450) > Re(550) > Re(650), wherein Re(450), Re(550) and Re(650) represent in-plane retardations at wavelengths of 450 nm, 550 nm and 650 nm, respectively. Arakawa (925), however, teaches the claimed optical laminate that satisfies the above inequalities with respect to the instant claim (*see Figure 9, Comparative Examples 7 and 8, vide infra*).

Arakawa (Prior Art):

FIG. 9



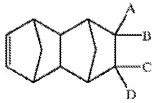
Arakawa and Arakawa (925) are analogous art because they are from the same field of endeavor, such as optical films. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Arakawa and Arakawa (925) before him or her, to modify the invention of Arakawa in order to include a cycloolefin based norbornene polymer, thereby obtaining the desired retardation properties as taught by Arakawa (925). The motivation for doing so, is described by Arakawa (925): "In the present invention, the various problems of the foregoing conventional devices can be solved, the fabrication can be carried out by simplified steps, and a retardation plate of a broad band which uniformly retards incident light in the entire visible light region...." (*0157*). Therefore, it would have been obvious to combine Arakawa and Arakawa (925) to obtain the invention as specified in the instant claims.

With respect to Claim 11, Arakawa and Arakawa (925) teach the claimed optical laminate, wherein the transparent resin is a norbornene polymer (*Arakawa [925], Abstract, lines 13-15*).

With respect to Claim 12, Arakawa and Arakawa (925) teach the claimed optical laminate, wherein the transparent resin is a hydrogenation product of a ring-opening polymer of a norbornene monomer (*see at least Formula V, 0047*) or a hydrogenation product of a ring-opening copolymer of a norbornene monomer (*0047*).

Arakawa ([925], Prior Art, 0047):

(V)



With respect to Claim 15, Arakawa and Arakawa (925) teach the invention set forth above, but do not specifically teach the claimed optical laminate, wherein an adhesive layer is disposed between the layer comprising a resin having a negative intrinsic birefringence (layer A) and the layer comprising a transparent resin and having substantially no orientation (layer B). Arakawa (925), however, teaches the use of an adhesive layer (*0080*).

Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to have incorporated an adhesive layer with Arakawa's invention in order to enhance the adhesion between layer A and layer B, thereby tuning the durability of the optical laminate (*Arakawa [925], 0080*).

With respect to Claim 16, Arakawa and Arakawa (925) teach the invention set forth above, but do not specifically teach the claimed optical laminate which satisfies relations Tg(A) > Tg(D), wherein Tg(D) represents a glass transition temperature or a softening point in ^{o}C of an adhesive in the adhesive layer. Arakawa (925), however, teaches the claimed optical laminate

which satisfies relations Tg(A) > Tg(D), wherein Tg(D) represents a glass transition temperature or a softening point in °C of an adhesive in the adhesive layer (*0080, line 13*).

Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to have incorporated an adhesive layer whose glass transition temperature is lower than the glass transition temperature of layer A in order to insure the adhesion between the layers at different operating temperatures and maintaining the structural integrity of the display by insuring that the adhesion layer transitions into a pseudo second phase (amorphous, non-crystalline) before layer A.

Claim Rejections - 35 USC § 103

11. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arakawa (US 5,189,538) in view of Sasaki (US 2003/0067574 A1).

With respect to Claim 19, Arakawa teaches the invention set forth above, but does not specifically teach the claimed liquid crystal display device, wherein said liquid crystal display device comprises a liquid crystal cell of in-plane switching (IPS) mode. Sasaki, however, teaches the claimed liquid crystal display device comprises a liquid crystal cell of in-plane switching (IPS) mode (*0048*).

Arakawa and Sasaki are analogous art because they are from the same field of endeavor, such as optical films. At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Arakawa and Sasaki before him or her, to modify the liquid crystal arrangement of the invention of Arakawa in order to include a the liquid crystal

arrangement as taught by Sasaki. The motivation for doing so would be as described by Sasaki: "The TN-LCD has a disadvantage in that the viewing angle thereof is narrow. A VA- or IPS-LCD capable of providing a wide viewing angle have been developed and begun to be popularized for monitor use." (*0006*). Therefore, it would have been obvious to combine Arakawa and Joda to obtain the invention as specified in the instant claims.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARMANDO P. RAMIREZ whose telephone number is (571)270-7083. The examiner can normally be reached on Mon - Thur (4/5/9).

13. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample can be reached on (571)272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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/David R. Sample/
Supervisory Patent Examiner, Art Unit 1794

/A. P. R./